TRUSHCHENKO, A.T.; LIMASOVA, T.I.

Study of the chemical composition of [illegible] 9.5.
Izv. SO AN SSSR no.7 Ser. khim. nauk no.2 [illegible] 93 [illegible].
(MIRA 13.12)

1. Novosibirskiy institut organicheskoy khimii Sibirskogo otdeleniya AN SSSR. Submitted March 5, 1964.

YUODVIRSHIS, A.M. [Juodvirsis, A.]; TROSHCHENKO, A.T.

Synthesis of α-primeveroside methylsalicylate. Khim. prirod. soed. no.5:302-306 '65. (MIRA 18:12)

1. Novosibirskiy institut organicheskoy khimii Sibirskogo otdeleniya AN SSSR. Submitted April 19, 1965.

GOLOVUSHKIN, M., inzh.; TROSHCHENKO, L., inzh.; ZAGORODSKIY, L., inzh.

Practices in the removal of underwater rocks. Rech. transp. 23 no.12:35-37 D '64. (MIRA 18:6)

GOLUBEVA, A.; TROSHCHENKO, M., tekhnolog

New developments in dry cleaning. Prom. koop. 12 no.8:11 Ag '58.
(MIRA 11:9)

1.Glavnyy inzhener moskovskoy fabriki "Khimchistka" No.2 (for Golubeva)
2.Moskovskaya fabrika "Khimchistka" No.2 (for Troshchenko).
(Cleaning and dyeing industry)

IL'YASHUK, Nikolay Davidovich; TROSHCHENKO, Mariana Aleksandrovna; GOLUBEVA, Aneta Mikhaylovna; ZLATOVEROV, B.S., red.; TRUSOV, N.S., tekhn. red.

[Technology of the chemical cleaning and dyeing of garments] Tekhnologiia khimicheskoi chistki i krasheniia odezhdy. Moslva. Gosbytizdat, 1963. 185 p. (MIRA 17:2)

TROSHCHENKOV N.A.

PHASE I BOOK EXPLOITATION SOV/6512

Ksenzuk, Feofan Andreyevich, and Nikolay Alekseyevich Troshchenkov

Prokatka i otdelka polosovoy nerzhaveyushchey stali (Rolling and Finishing of Stainless Steel Strips) Moscow, Metallurgizdat, 1963. 205 p. Errata slip inserted. 2500 copies printed.

Ed. of Publishing House: V. M. Gorobinchenko; Tech. Ed.: L. V. Dobuzhinskaya.

PURPOSE: This book is intended for engineering personnel, foremen, and skilled workmen of rolling shops which produce stainless steel sheets and plates. It may also be useful to designers of planning organizations and students at schools of higher education.

COVERAGE: The book describes the process of making stainless steel sheets and plates. Characteristics of hot and cold

Card 1/

Rolling and Finishing (Cont.)

rolling mills for stainless steel are presented, and methods of preparation of ingots and slabs for rolling are reviewed. The book gives a classification of stainless steels with a description of their basic properties and the dependence of these properties on conditions of heat treatment and cold rolling. Modern technology of cold rolling, heat treatment, and pickling of strips is discussed. Various types of defects and methods of preventing them are outlined. No personalities are mentioned. There are 98 references, mostly Soviet.

TABLE OF CONTENTS:

ACCESSION NR: AT4014063 S/3072/63/000/000/0080/0088

AUTHOR: Ksenzuk, F. A.; Troshchenko, N. A.; Tilik, V. T.

TITLE: Technological lubricants for cold rolling of sheet and thin plate

SOURCE: Fiz.-khim. zakonomernosti deystviya smazok pri obrabotke metallov davleniyem. Moscow, Izd-vo AN SSSR, 1963, 80-88

TOPIC TAGS: cold rolling, rolling mill, lubricant beef tallow, castor oil, palm oil, mineral oil, stainless steel

ABSTRACT: The usually applied 2% emulsion of standard emulsol for cold rolling of sheets is not satisfactory, causing high contact pressure between metal and rolls, enhancing formation of carbon deposit and thus preventing eventual tinning, and not permitting rolling of sheets thinner than 0.25 mm. Therefore, other technological lubricants have been tried, such as refined cottonseed oil, hydrogenated sperm oil, palm oil, beef tallow, castor oil, and hydrogenated vegetable oils. Best results in rolling have been obtained with beef tallow and castor oil. However, beef tallow has caused clogging of drain pipes, due to its high melting point. For the same reason hydrogenated sperm oil has proven to be inadequate. Cotton-

Card 1/4

ACCESSION NR: AT4014063

lubricants has been under way. Mineral oils of various viscosities, mineral oils with addition of different fatty acids and vegetable oils, and, for comparison, pure vegetable oils have been tested on a one-unit rolling mill. It has been found that lubricants of higher viscosity correspond to higher stretching coefficients in rolling. The best of the tested mineral lubricants has been cylinder oil No.6. However, difficulties have been experienced in spreading this viscous lubricant on the work. Therefore, preference has been given to cylinder oil No.24 (viscosin), which is equivalent to PKS-1 with respect to stretching of sheet and power requirement but approximately 40 times less expensive. However, the surface quality of sheets has been different when using viscosin or PKS-1. With PKS-1 a shiny smooth surface has been produced, while with viscosin the finished surface has been dull, with white spots from rolled-in oil which sometimes made complete degreasing difficult. It has been concluded that high viscosity mineral oils can be advantageously used as technological lubricants in cold rolling of thin sheets and plates, instead of expensive oils of vegetable or animal origin. For manufacture of cold rolled stainless sheets of 0.8-1.4 mm thickness, strips 1.5-1.8 mm thick have been subjected to intermediate heat treatment and pickling, and then rolled to final thickness. Spindle oil has been used as the lubricant. Under such conditions a great amount of rework was needed and the sheet quality was low.

Card 3/4

ACCESSION NR: AT4014063

Instead of the above procedure, cold rolling of stainless steel strips of 0.7;0.8; 0.9;1.0;1.2;1.3; and 1.4 mm from prerolled sheet 3 mm thick without intermediate heat treatment has been adopted. Such rolling has been made possible by using polished rolls and P-28 oil and viscosin as lubricants. Total reduction of sheet thickness without preliminary heating has been increased from 50-55 to 77%, not only for austenitic but also for steels of lower plasticity, such as austenitic-ferritic, austenitic-martensitic, and ferritic-martensitic stainless steels without occurrence of edge tearing. The number of passes for rolling 0.8 and 1.0 mm thick strips has been reduced from 14 and 12 to 11 and 9, respectively; surface quality has improved, and driving power and pressure on rolls have not been excessive. Production has been increased by 70%, by applying higher speed with fewer passes. For rolling of 1.5-2.5 thick stainless strips, spindle oil has been retained as the lubricant. The use of high viscosity mineral lubricants, such as viscosin, has proved adequate also for cold rolling of thin (0.35 mm) transformer steel sheets. Orig. art. has: 11 tables.

SUBMITTED: 00 DATE ACQ: 19Dec64 ENCL: 00

SUB CODE: MM, IE NO REF SOV: 004 OTHER: 000

Card 4/4

KSENZUK, F.A.; TSELOVAL'NIKOV, V.M.; TILIK, V.T.; TROSHCHENKOV, N.A.

Increasing the output of a continuous three-high cold rolling mill. Met.i gornorud. prom. no.6:27-29 N-D '63. (MIRA 18:1)

KSENZUK, F.A., inzh.; KHUDAS, A.L., inzh.; TROSHCHENKOV, N.A., inzh.; GAMERSHTEYN, V.A., inzh.; AKIMOV, E.P., inzh.; IOFFE, M.M., inzh.; VEKLICH, M.I., inzh.; ANTIPENKO, V.G., inzh.; TILIK, V.T., inzh.; FILONOV, V.A., inzh. [deceased]; BORISENKO, V.G., inzh.

At the "Zaporozhstal'" plant. Stal' 23 no.6:554, 562, 572, 575 Je '63. (MIRA 16:10)

TOKAR', I.K.; CHAMIN, I.A.; Prinimali uchastiye: BOYKO, M.V.; CHUB, G.F; GAMERSHTEYN, V.A.; YASHNIKOV, D.I.; FILONOV, V.A.; TROSHCHENKO, N.A.; SAMOYLOV, I.D.; ZAYTSEV, V.V.; KOLOMATSKIY, V.D.

Efficient lubrication for the rolling of thin sheet iron. Metallurg 6 no.8:22-24 Ag '61. (MIRA 14:8)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (for Tokar', Chamin, Zaytsev, Kolomatskiy). 2. Zavod "Zaporozhstal'" (for Boyko, Chub, Gamershteyn, Yashnikov, Filonov, Troshchenko, Samoylov).
(Metalworking lubricants) (Sheet iron)

TROSHCHENKO, T.K.

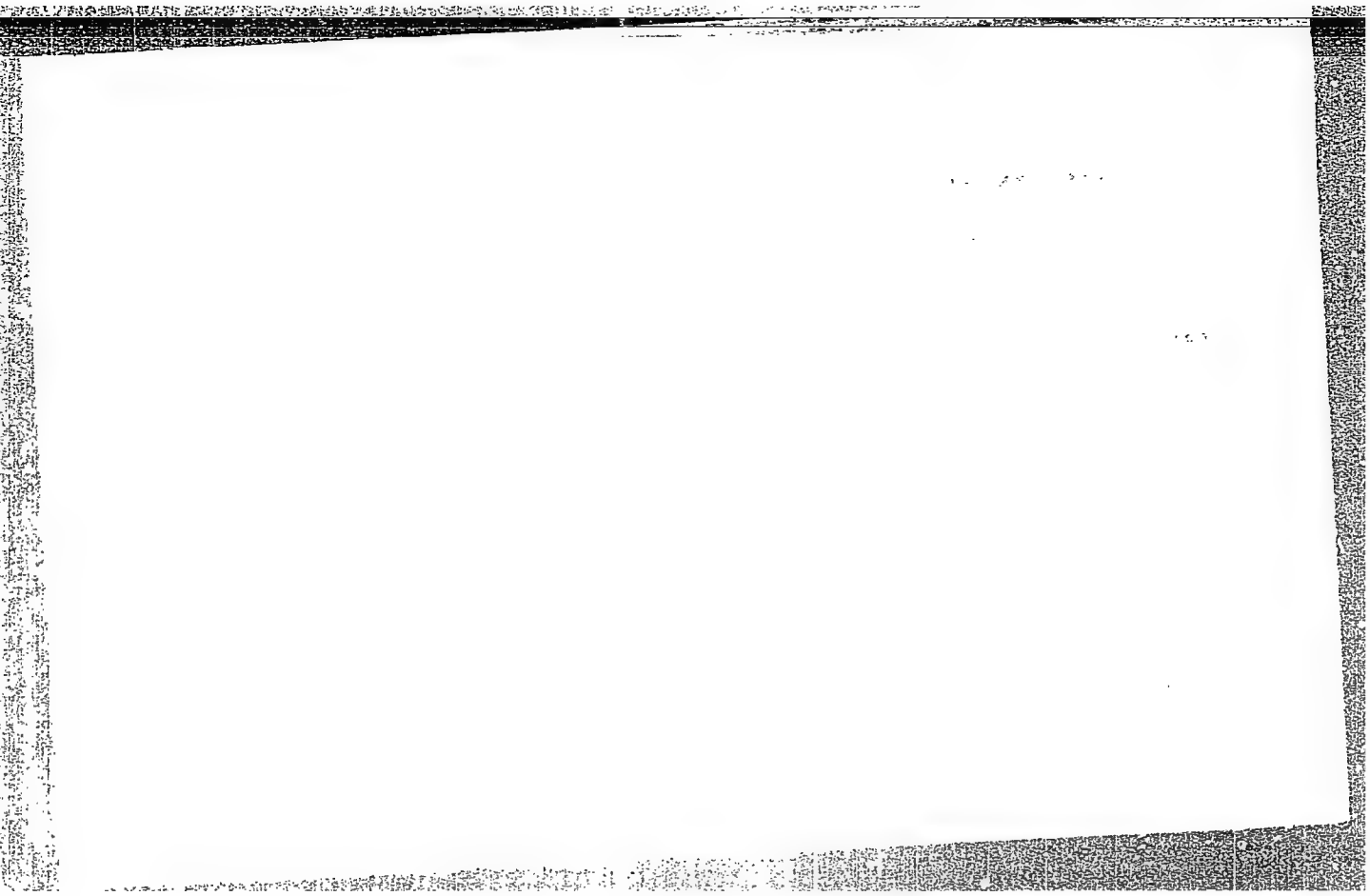
Present state and prospects for the development of the baking industry in the Ukrainian S.S.R. Khar. prom. no.3:3-6 Jl-S '65. (MIRA 18:9)

TROSHCHENKO, T.K

AUERMAN, L.Ya. professor; TROSHCHENKO, T.K.

Conference on the problems of baking in Detmold (West Germany). Khleb. i kond. prom. 1 no.1:46-48 '57. (MLRA 10:4)

1. Moskovskiy tekhnologicheskiy institut pishchevoy promyshlennosti (for Auerman).
2. Ministerstvo promyshlennosti prodovol'stvennykh tovarov USSR (for Troshchenko).
(Detmold, Germany--Baking)



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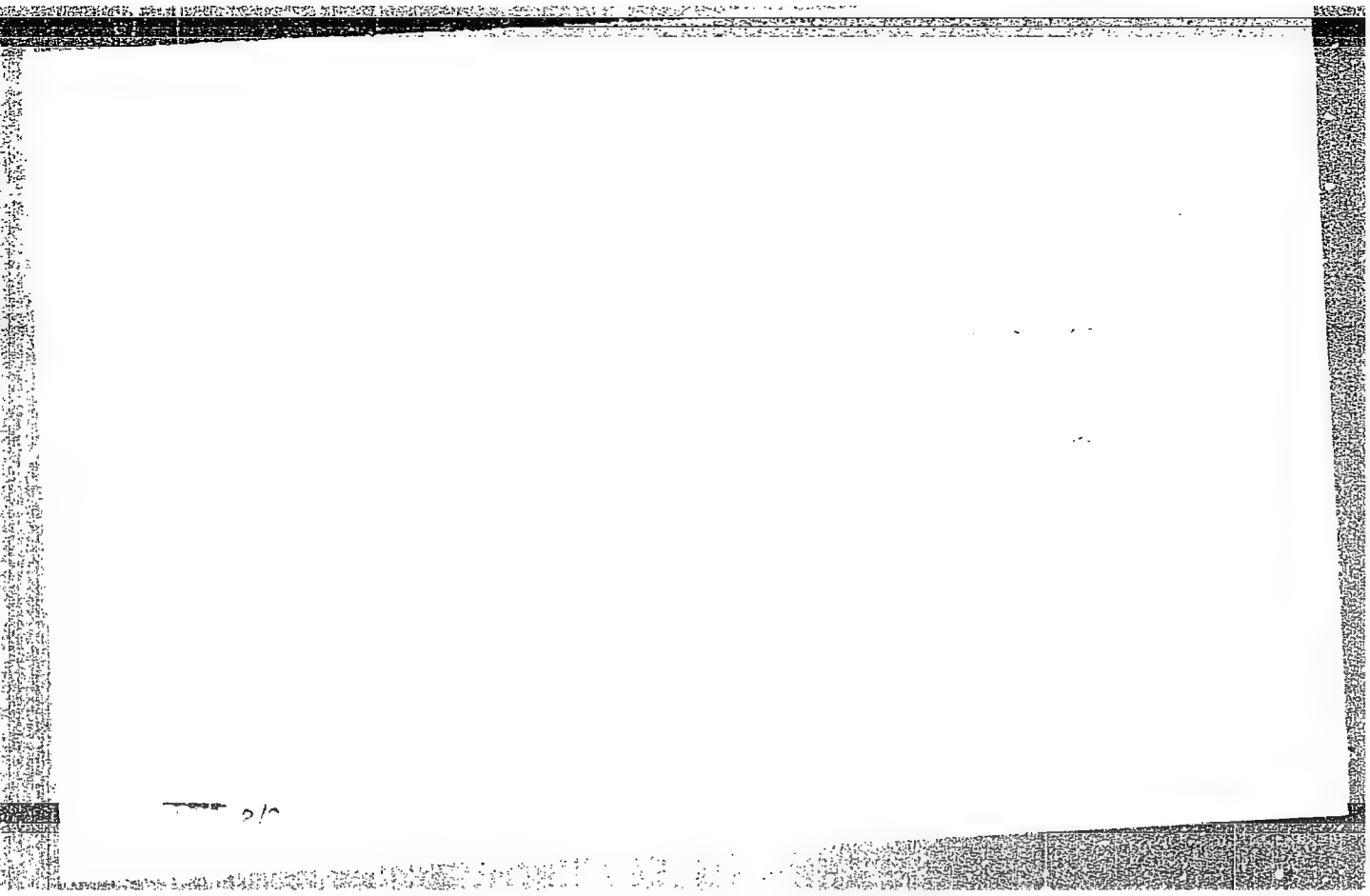


TROSHCHENKO, V.N.

Lamprophyre dikes in a deposit of mercury ores. Geol. i geofiz. no.5:117-121 '60. (MIRA 13:9)

1. Tomskiy politekhnicheskiy institut.
(Altai Mountains--Mercury ores) (Dikes)

TROSHCHENKO, V. N.

Cand Geol-Min Sci - (diss) "Mercury deposits of the northern limits of the Chuyskaya Steppe (Gornyy Altay)." Tomsk, Pub. Tomsk Univ, 1961. 19 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Tomsk Order of Labor Red Banner Polytechnic Inst imeni S. M. Kirov); 150 copies; price not given; (KL, 7-61 sup, 226)

TROSHCHENKO, V.N.

Association of mercury and complex metal mineralization as exemplified by one of the deposits in the southeastern Altai. Izv.vys.ucheb.zav.; geol.i razv. 4 no.2:91-94 F '61. (MIRA 14:6)

1. Tomskiy politekhnicheskiy institut.
(Altai Mountains--Mercury ores)

TROSHCHENKO, V.N.

Some characteristics of the geology and genesis of mercury deposits in the northern margin of the Gornyy Altai. Geol. rud.mestorozh. no.5:56-68 '62. (MIRA 15:12)

1. Tomskiy politekhnicheskiy institut imeni S.M. Kirova.
(Altai Mountains--Mercury ores)
(Altai Mountains--Geology, Structural)

SOV/170-59-6-16/20

15(2)

AUTHORS: Artamonov, A.Ya., Radomyael'skiy, I.D., Troshchenko, V.T.

TITLE: Investigation of the Effect of Electromechanical Treatment on the Strength of Metal Ceramic Materials on a Silicon Carbide Base

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 6, pp 100-103 (USSR)

ABSTRACT: The ordinary mechanical working of materials based on silicon carbide is rather difficult in view of their considerable hardness. Therefore, the authors studied a possibility of applying electromechanical working and its effect on the strength of metal ceramic materials. The specimens were prepared by the powder metallurgy method with impregnation and divided into 6 portions, one of which was left without working and the other five were subjected to electromechanical working with different degrees of fineness on a special installation. The effect of treatment on the strength was investigated by statical bending with a concentrated force, and the results are presented in Table 1 and Figure 3. It is shown that the working affects the strength of the silicon carbide specimens considerably, and the latter

Card 1/2

Investigation of the Effect of Electromechanical Treatment on the Strength of Metal Ceramic Materials on a Silicon Carbide Base

can be increased by as much as 55% as compared with the specimens not subjected to working.
There are: 1 photo, 1 diagram, 1 graph, 1 table and 1 American reference.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov, AN USSR (Institute of Metal Ceramics and Special Alloys of the AS UkrSSR), Kiyev.

PHASE I BOOK EXPLOITATION SOV/5303

Nauchno-tekhnicheskoye soveshchaniye po dempfirovaniyu kolebaniy. Kiyev, 1958.

Trudy Nauchno-tekhnicheskogo soveshchaniya po dempfirovaniyu kolebaniy, 17 - 19 dekabrya 1958 g. (Transactions of the Scientific and Technical Conference on the Damping of Vibrations, Held 17 - 19 December, 1958) Kiyev, Izd-vo AN UkrSSR, 1960. 178 p. 2,000 copies printed.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov.

Editorial Board: I. N. Frantsevich, G. S. Pisarenko (Resp. Ed.), G. V. Samsonov, V. V. Grigor'yeva, and A. P. Yakovlev; Ed. of Publishing House: I. V. Kisina; Tech. Ed.: A. A. Matveychuk.

PURPOSE: This book is intended for mechanical engineers, metallographers, physicists specializing in metals, designers, aspirants, and scientific workers.

Card 1/7

COVERAGE: The book contains 27 articles dealing with principal results of theoretical and experimental investigations of energy dissipation in mechanical vibrations carried out in the Soviet Union from 1956 to 1958. Problems of energy dissipation in materials and factors affecting it are discussed. Purportedly new methods of experimental investigation of damping of vibrations are presented. Attention is given to the recently developed nonlinear theory of calculating vibrations in elastic systems, taking energy dissipation into account. Attempts to analyze internal energy dissipation in materials using methods of mathematical statistics are discussed. Some articles deal with engineering problems in dynamics, in which damping is claimed to play a highly substantial part. Aspirant N. I. Mukhin, of the Kiyev Polytechnic Institute, is mentioned. References accompany some of the articles.

TABLE OF CONTENTS:

TROSHCHENKO, V.T.

Scattering of energy in a material. Fiz.tver.tela 2 no.6: 1060-1069 Je '60. (MIRA 13:8)

1. Institut metallokeramiki i spetsial'nykh splavov AN USSR, Kiyev.
(Damping (Mechanics)) (Vibration)

S/124/61/000/009/055/058
D234/D303

AUTHOR: Troshchenko, V.T.

TITLE: Applying the methods of mathematical statistics to analyzing the process of energy dissipation in a material

PERIODICAL: Referativnyy zhurnal. Mekhanika, no. 9, 1961, 48, abstract 9 V437 (Tr. Nauchno-tekhn. soveshchaniya po dempfirovaniyu kolebaniy, 1958, Kiyev, AN USSR, 1960, 71-83)

TEXT: An attempt is made to find the dependence for characteristics of damping properties of a material on the basis of the assumption that energy dissipation in the material is caused, in the first place, by microplastic deformations, using methods of mathematical statistics for taking these deformations into account. Influence of some structural factors on these characteristics is considered, such as the dimensions of the specimen, the form of the

Card 1/2

S/124/61/000/009/055/058
D234/D303

Applying the methods...

stressed state, etc. The author finds: 1) An analytic expression for the energy dissipated by the volume unit of the material during a cycle of vibration; 2) relations for relative cyclic viscosity in different forms of stressed state. It is shown that the energy dissipated in the material during one cycle of vibration depends essentially on the structural properties of the material, dimensions of the specimen, form of stressed state. [Abstracter's note: Complete translation]

Card 2/2

69973
S/170/60/003/01/18/023
B022/B007

18.6000

AUTHOR: Troshchenko, V. T.

TITLE: Some Questions Relating to the Strength of Powder-metallurgical Materials on a Silicon Carbide Basis

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 1, pp. 103 - 107

TEXT: In the present paper, the use of the statistical theory of strength in calculating brittle powder-metallurgical materials (silicon carbide) is dealt with. Equation (1,2) by W. Weibull (Refs. 2,4) on brittle strength is mentioned. The tests were carried out at normal (20°C) and high (1200°C) temperatures on silicon carbide samples, which had been produced according to different technological methods, and had a certain similarity to silicates. The photograph of the microsection of a silicon carbide material is shown (Fig. 1), from which its phase-composition may be seen. The results of the tests carried out on 6 silicon-carbide mixtures with different phase compositions for the purpose of determining the brittle strength F are given (Table 1). The curves for the change of the strength F of the samples as dependent on the working volume $V^{1/3}$ were

Card 1/2

Some Questions Relating to the Strength of Powder-metallurgical Materials on a Silicon Carbide Basis

determined on the basis of the results of bending tests by the application of a concentrated force (Fig. 2). The experimental (F) and theoretical (F^*) results for various kinds of state of stress are compared (Table 2). The results obtained show good agreement between experimental data and those obtained according to W. Weibull's calculation formulas. The sensitivity to stress concentrations is calculated and the experimentally obtained quantities q are compared to the calculated values q_r (Table 3). On the basis of the results obtained it may be said that the laws in the destruction of brittle powder-metallurgical materials on a basis of silicon carbide have a statistical character, and that for their sufficiently accurate determination the formulas of the statistical theory of strength by W. Weibull may be used. T. Kontorova and Ya. Frenkel' (Ref. 1) as well as G. Neyber (Ref. 5) are mentioned. There are 2 figures, 3 tables, and 5 references, 3 of which are Soviet.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR, g.Kiyev (Institute of Powder Metallurgy and Special Alloys of the AS UkrSSR, City of Kiyev)

87707

S/032/60/026/012/020/036
B020/B056

1.9600 also 2807

AUTHORS: Gryaznov, B. A. and Troshchenko, V. T.

TITLE: A Method of Determining the Fatigue Limit

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 12, pp. 1398-1401

TEXT: In the present paper, the results obtained by an investigation are given, which was carried out to determine the applicability of the method of increasing stress for determining the fatigue limit of austenite steel ЭИ 612 (EI612) at normal and high temperature (630°) as well as of a number of cermets whose fatigue values were widely spread. Steel and cermets on the basis of iron powder with a porosity of 19-22% were subjected to a symmetric cycle of torsions in the device of the type By-8 (VU-8). The increase of stress was warranted by a special device (Fig. 1) through which water was conveyed into a container fastened to the sample. The device consists of a diaphragm pump, an eccenter, a reducer, and electric motor and a starter. Testing the cermets on the basis of chromium carbide and silicon carbide was carried out in the apparatus of the type УМ-2 (UM-2) by using the same device as described above. The results obtained

Card 1/2

87707

A Method of Determining the Fatigue Limit S/032/60/026/012/020/036
B020/B056

by investigating the fatigue strength of steel EI612 and of the cermets according to the usual method are given in Fig. 3. Fig. 4 shows the results obtained by investigating the same materials in the case of increasing stress. In tests carried out with symmetric stress cycle, the preliminary stress was 0.8 of the fatigue limit. When recording the curves, the method of least squares was used. The results obtained by using various methods of determining the fatigue limit are given in a table. From this table and from the Figs. 3 and 4 it follows that when using the method of increasing stress, the fatigue limit of steel EI612 may be determined both at normal and also at increased temperature. The saving of time made possible by this method is about 40% for steel EI612 in comparison to the statistical methods. There are 4 figures, 1 table, and 4 references: 1 Soviet, 1 French, and 2 US.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov Akademii nauk USSR (Institute of Powder Metallurgy and Special Alloys of the Academy of Sciences UkrSSR)

Card 2/2

PISARENKO, Georgiy Stepanovich [Pysarenko, H.S.]; TROSHCHENKO, Valeriy Trofimovich; FRANTSEVICH, I.M. [Frantsevych, I.M.], akademik, otv. red.; REMENNIK, T.K., red.izd-va; LIBERMAN, T.R., tekhn. red.

[Statistical theory of strength and its application to ceramic metal materials] Statystychni teorii mitsnosti ta ikh zastosuvannia do metalokeramichnykh materialiv. Kyiv, Vyd-vo Akad. nauk URSR, 1961. 104 p. (MIRA 15:3)

1. Akademiya nauk USSR (for Frantsevich).
(Ceramic metals) (Strength of materials)

KOSHCHENKO V. I.

33544
S/123/62/000/002/004/012
A004/A101

15.2610

AUTHORS: Troszczenko, W. T., Griaznow, B. A.

TITLE: Some problems concerning the fatigue strength of ceramic materials

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 2, 1962, 25, abstract 2A54 ("Wytrzymałość zmęczeniowa tworzyw i elementów metalowych". Warszawa, 1961, 57-60, Polish)

TEXT: The authors present the results of investigations of the effect of temperature, mechanical working, presence of notches and also of the stress sign on the fatigue strength of ceramic materials on the base of chromium carbide (85% Cr_3C_2) and silicon carbide (49, 22% SiC). The specimens on the Cr_3C_2 base had the following composition (in %): Ni - 15.3, C - 9.4, Cr - 71.35. They were manufactured by pressing the powder mixture and subsequent sintering in a hydrogen atmosphere at 1,300°C. Static and fatigue tests were carried out on the rough specimens, ground by the mechanical and electrolytic method. The specimens on the SiC base were made from graphite of the corresponding dimensions and shape and then impregnated with Si in a hydrogen atmosphere. The specimens were heated in the machines by resistance currents. The temperature was measured

Card 1/2

33544

S/123/62/000/002/004/012
A004/A101

Some problems concerning the fatigue strength ...

with optical pyrometers. The tests on the ИМ-2 (IM-2) machine were carried out at a loading frequency of 50 cps. The ИИ-5 (II-5) machine is intended for pure bending tests with simultaneous tension or compression, at a frequency of 400 cps. The stresses in the specimens were determined from the magnitude of the specimen oscillation amplitude, rated with a microscope. During the tests on the IM-2 machine, the cycle asymmetry attained 0.15, this value being 0.8 on the II-5 machine. It was found that a considerable scattering of the fatigue test results could be observed in ceramic materials. The authors recommend to use statistical methods in processing the experimental results. The inflection of the fatigue strength curve in the semilogarithmic coordinates occurs at a base of 10^6 cycles. The fatigue strength depends on the temperature and surface state of the specimens. In ceramics on the base of Cr_3C_2, the fatigue limit is considerably lowered if stress raisers are present. The fatigue strength abruptly decreases if axial tensile stresses act on the specimens, and increases in the presence of axial compressive stresses. During cyclic loading, in most of the cases the fracture has no two clearly expressed zones (fatigue and brittle fracture zones). The mentioned zones could be only observed in fractures of SiC specimens at high temperatures and considerable axial compressive stresses. There are 9 figures.

G. Mekhed

[Abstracter's note: Complete translation]

Card 2/2

TROSHCHENKO, V.T.

Brittle strength of ceramic metal materials. Porosh.met. 1 no.6:62-69 N-D '61. (MIRA 15:5)

1. Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR.
(Ceramic metals—Brittleness)

3251
S/123/62/000/011/007/011
A052/A101

15.2400

AUTHORS: Artamonov, A. Ya., Radomysel'skiy, I. D., Troshchenko, V. T.

TITLE: The effect of machining on the strength of brittle sintered materials

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 11, 1962, 39, abstract 11B227 ("Poroshk. metallurgiya, no. 5, 1961, 65 - 68, English summary)

TEXT: The effect of machining on the strength of sintered materials on chromium carbide and silicon carbide base was investigated. Sintered materials on silicon carbide base were tested for strength prior to machining (after electro-mechanical processing), whereby a surface layer 0.5 - 0.6 mm thick was removed, and also after applying to the machined surface a silicon carbide layer. Sintered materials on chromium carbide base (9.4% C, 71.35% Cr, 15.3% Ni and 3.95% others) were subjected to static (pure bending) and fatigue tests prior to machining immediately after sintering, abrasive disk grinding and electromechanical processing. It is established that the electromechanical processing as well as the silicon impregnation process increase the static strength of sintered mate-

Card 1/2

The effect of machining on the strength of...

rials on silicon carbide base prepared by the method of impregnation. Electro-mechanical processing of sintered materials on chromium carbide base does not reduce the static and fatigue strength, whereas abrasive grinding even under soft conditions reduces considerably both strength characteristics. Such a reduction of strength is caused by the formation in the process of grinding of a large number of superficial microcracks 5 - 10 mm wide (?) and up to 50 mm deep (?). The formation of these cracks is connected obviously with the heating of local surface sections which can produce considerable thermal stresses. It is pointed out that the strength of ground samples is similar to that of the samples with stress concentrators. The microcracks weaken the samples in the same way as the stress concentrators with a concentration factor of 3. The sensitivity to the stress concentration of sintered materials on chromium carbide base is 0.4. There are 5 references and 2 figures.

E. Spivak

[Abstracter's note: Complete translation]

Card 2/2

S/114/61/000/004/004/006
E194/E435

AUTHORS: Pisarenko, G.S., Corresponding Member AS UkrSSR, Troshchenko, V.T., Candidate of Technical Sciences, Kaplinskiy, L.A., Engineer and Gryaznov, B.A., Engineer

TITLE: An Investigation of the Fatigue Strength of Steel 1Kh13 (1Kh13) in Variable Bending With Static Tension

PERIODICAL: Energomashinostroyeniye, 1961, No.4, pp.29-31

TEXT: Analysis of turbine blade breakages shows that they are mostly due to fatigue. In most laboratory fatigue tests certain factors are not allowed for, including the presence under service conditions of appreciable tensile stresses due to centrifugal force. The present work describes an investigation of the influence on the fatigue strength of steel 1Kh13 in bending of a constant tensile stress which imitated the influence of centrifugal force. The tests were carried out at temperatures of 100 and 400°C on steel 1Kh13 with different kinds of heat treatment. The specimen geometry is shown in Fig.1. The heat treatment and the mechanical properties of the material is shown in table 1, where the second column gives the heat treatment

Card 1/ 4

conditions, the third column the test temperature and the last column gives the hardness. In each case the first stage of heat treatment is hardening for 1000°C at 2 hours and the different kinds of tempering are: (1) at 420°C for two hours; (2) at 720°C for two hours and (3) at 760°C for two hours. The tests were made on a fatigue machine type HY (NU) with a device for the application of static tension. The equipment was calibrated with two resistance strain gauges and graphs were plotted of the relationship between the bending stress in the specimen and the applied load for several values of static stress. The frequency of load application was 50 c/s. The specimen was heated by a resistance furnace. The instrumentation is briefly described. For the various heat treatments described above, Table 2 gives the test temperature and the tensile stresses (mean stresses over the cycle in kg/mm^2). The test results are plotted in Fig.2 and 3: Fig.2 corresponding to heat treatment conditions (1), curves (a) at 100°C and (b) at 400°C; Fig.3 to tests at 100°C on (a) heat treatment conditions (2) and (b) heat treatment conditions (3). Table 3 gives the fatigue limits found for the various materials.

The results are best presented in the form of graphs in coordinates of the mean stress in the cycle and the amplitude value of the fatigue limit. A diagram of this kind is plotted in Fig.4 for test results at 100°C. The numbers on the curves correspond to the different heat treatments. The test results show that the mean stress of a cycle within the range of investigation has no influence on the fatigue limit in bending of steel 1Kh13 when the tempering temperature is low and the yield point and ultimate strength are high. On the other hand, for the same steel deeply tempered to be of lower strength and greater plasticity, the fatigue limit is greatly reduced by increasing the maximum stress. In the absence of static loading the ratio of the fatigue limit to the ultimate strength for steel 1Kh13 is constant and does not depend on the heat treatment or test temperature, being 0.40 to 0.42. No appreciable difference was found between the fatigue limits of steel 1Kh13 at temperatures of 100 and 400°C. The work of M.F.Sichikov, Z.D.Vishnevetskiy and D.L.Ginberg (Ref.1) is discussed and the following main conclusions are drawn. The application of appreciable constant

tensile stresses (up to 35 kg/mm^2) during variable bending does not reduce the fatigue limit of specimens of the first batch of steel 1Kh13 of high strength characteristics. For example, for this batch the maximum stress corresponding to the fatigue limit is 80 kg/mm^2 which is 96% of the yield point at 100°C. No reduction in the fatigue limit was found for this batch of specimens at a temperature of 400°C. On the other hand, tests on samples of the same steel which had been tempered at a higher temperature to ensure greater plasticity though lower strength (second and third batches) revealed considerable reduction of fatigue limit (by 24%) during investigations with static stress. These results, combined with other published work, show that there is no single relationship between the strength of steels and their sensitivity to the mean stress of the cycle. The fatigue limit of steels of high ultimate strength often does not depend on the mean stress of the cycle and vice versa. The results may be understood if one takes into account the appreciable irreversible energy dispersion in the material which occurs in steel 1Kh13 tempered at a high temperature. M.A.Voropayev (Ref.9),

S/122 /61/000/007/003/007
D209/D304

AUTHOR: Troshchenko, V.T., Candidate of Technical Sciences

TITLE: Investigating the design strength of steam turbine blades

PERIODICAL: Vestnik mashinostroyeniya, no. 7, 1961, 35 - 37

TEXT: The author examines the 1st and 9th stage blades of a steam turbine and explains why the fatigue limit of a working blade is lower than that of the material of which it is made. Two factors are stated to contribute to this discrepancy: technological and constructional. To obtain reliable information on the strength of heavy duty turbine blades an investigation must be made which closely resembles the actual working conditions of turbine blades. The blades of the 1st and 9th stage of a steam turbine type CKP-100 (SKR-100) with an output of 100.000 Kw are shown. They are made of austenite steel of grade ЭИ-612 (EI-612). Two similar types of blades were investigated, the only difference between them

Card 1/3

Investigating the design ...

being a cooling duct cut into the tail end of one of the blades for cooling the rotor by means of low temperature steam. Blades made of the same material as the blades of turbine, EI612, were subjected to a pulling force, equivalent to the centrifugal force acting on the actual baldes in the turbine along the weakest section. The experiment was carried out on a Y-363 (U-363) type of fatigue testing machine. Testing the blades of the 1st stage is shown in Fig. 2. In this machine the blades are subjected to cycles of alternating stresses. Stresses due to tension are determined by a static dinamometer and the alternating stresses are obtained by strain gauges attached to the blades. The temperature of the blades was checked by means of a thermocouple welded onto it. The results of this experiment are shown in Fig. 3, based on 30 M/cs. In Fig. 3 points designated by Δ represent blades with a cooling duct and o represents blades without cooling ducts. From the results obtained the author states that the cooling ducts have no influence on the strength of the blades. Fracture always took place in the vicinity of the weakest section, i.e. where the stress

concentration was the highest. The author concludes that the working stress of turbine blades is much lower than the strength of the same blades obtained by laboratory experiments. The reduction in strength is due to technological and constructional factors. The cooling ducts cut into the tail end of the blades have no effect on the working strength of the turbine blades. There are 4 figures, 2 tables and 2 Soviet-bloc references.

TROSHCHENKO, V.T. AND PISARENKO, G.S.

"Mechanics properties of materials manufactured by powder metallurgical methods.

Paper presented at the Powder Metallurgy Conference
Smolenice, Czech/ 17-20 Sep 1962

PISARENKO, Georgiy Stepanovich; TROSHCHENKO, Valeriy Trofimovich; TIMOSHENKO, Vsevolod Georgiyevich; KUZ'MENKO, Vasiliy Aleksandrovich; ISAKHANOV, Georgiy Vakhtangovich; TRET'YACHENKO, Georgiy Nikolayevich; GRYAZNOV, Boris Alekseyevich; NOVIKOV, Nikolay Vasil'yevich; RUDENKO, Vasiliy Nikitich; SHUMILOVA, Rufina Gerasimovna; LEBEDEV, I.V., red.; DAKHNO, Yu.B., tekhn. red.

[Strength of ceramic metals and alloys at normal and high temperatures]Prochnost' metallokeramicheskikh materialov i splavov pri normal'nykh i vysokikh temperaturakh. Kiev, Izd-vo Akad. nauk USSR, 1962. 274 p. (MIRA 16:2)

1. Chlen-korrespondent Akademii nauk Ukr.SSR (for Pisarenko).
(Ceramic metals)
(Metals at high temperatures)

I KOSHCHENKO, V. I.

PHASE I BOOK EXPLOITATION SOV/6342

Pisarenko, Georgiy Stepanovich, Valeriy Trofimovich Troshchenko, Vsevolod Georgiyevich Timoshenko, Vasiliy Aleksandrovich Kuz'menko, Georgiy Vakhtangovich Isakhanov, Georgiy Nikolayevich Tret'yachenko, Boris Alekseyevich Gryaznov, Nikolay Vasil'yevich Novikov, Vasiliy Nikitich Rudenko, and Rufina Gerasimovna Shumilova

Prochnost' metallokeramicheskikh materialov i splavov pri normal'nykh i vysokikh temperaturakh (Strength of Sintered Materials and Alloys at Room and High Temperatures) Kiyev, Izd-vo Akademii nauk UkrSSR, 1962. 274 p. Errata slip inserted. 2400 copies printed.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov.

Resp. Ed.: G. S. Pisarenko, Corresponding Member, Academy of Sciences USSR; Ed.: I. V. Lebedev; Tech. Ed.: Yu. B. Dakhno.

Card ~~1/9~~ 1/2

PURPOSE: The book is intended for engineers, scientific research workers, aspirants, and students concerned with problems of the strength of sintered materials and structural parts.

COVERAGE: The book reviews the results of studying the strength, ductility, and elasticity of materials and structural parts produced by powder-metallurgy methods and presents brief information on these methods. Particular attention is given to methods of experimental investigation of physical and mechanical characteristics of heat-resistant sintered materials with specific properties, and to the description of a number of testing units developed for these investigations. Some problems of the theory of the strength of brittle sintered materials and high-porosity ductile materials are discussed. Laws governing changes in characteristics of strength and elasticity under the effect of various factors are outlined. The appendix includes reference tables with data on the basic mechanical characteristics of a number of sintered materials. The assistance of members of the Powder Metallurgy Institute V. I. Kovpak, Yu. A. Kashtalyan, L. V. Kravchuk. A. P. Yakovlev, V. K. Kharchenko, V. K. Kuz'menko, and V. A. Chebotarev is acknowledged. There are 141 references, mostly Soviet.

TROSHCHENKO, V.T.

PHASE I BOOK EXPLOITATION SOV/6342

Pisarenko, Georgiy Stepanovich, Valeriy Trofimovich Troshchenko, Vsevolod Georgiyevich Timoshenko, Vasiliy Aleksandrovich Kuz'menko, Georgiy Vakhtangovich Isakhanov, Georgiy Nikolayevich Tret'yachenko, Boris Alekseyevich Gryaznov, Nikolay Vasil'yevich Novikov, Vasiliy Nikitich Rudenko, and Rufina Gerasimovna Shumilova

Prochnost' metallokeramicheskikh materialov i splavov pri normal'nykh i vysokikh temperaturakh (Strength of Sintered Materials and Alloys at Room and High Temperatures) Kiyev, Izd-vo Akademii nauk UkrSSR, 1962. 274 p. Errata slip inserted. 2400 copies printed.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov.

Resp. Ed.: G. S. Pisarenko, Corresponding Member, Academy of Sciences USSR; Ed.: I. V. Lebedev; Tech. Ed.: Yu. B. Dakhno.

Card 1/9

Strength of Sintered Materials (Cont.) SOV/6342

PURPOSE: The book is intended for engineers, scientific research workers, aspirants, and students concerned with problems of the strength of sintered materials and structural parts.

COVERAGE: The book reviews the results of studying the strength, ductility, and elasticity of materials and structural parts produced by powder-metallurgy methods and presents brief information on these methods. Particular attention is given to methods of experimental investigation of physical and mechanical characteristics of heat-resistant sintered materials with specific properties, and to the description of a number of testing units developed for these investigations. Some problems of the theory of the strength of brittle sintered materials and high-porosity ductile materials are discussed. Laws governing changes in characteristics of strength and elasticity under the effect of various factors are outlined. The appendix includes reference tables with data on the basic mechanical characteristics of a number of sintered materials. The assistance of members of the Powder Metallurgy Institute V. I. Kovpak, Yu. A. Kashtalyan, L. V. Kravchuk, A. P. Yakovlev, V. K. Kharchenko, V. K. Kuz'menko, and V. A. Chebotarev is acknowledged. There are 141 references, mostly Soviet.

Card 2/9

37965

S/137/62/000/005/055/150
A006/A101

15.2400

AUTHORS: Troshchenko, V. T., Gryaznov, B. A.

TITLE: Some problems of fatigue strength of cermet materials

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1962, 33, abstract 5G219 ("Ustalostn. prochnost' mater. i elem. Mater. konf. v Varshave, 12-14 maya, 1960 g". Varshava, 1961, 15-19)

TEXT: The fatigue strength of Cr_3C_2 - (I) and SiC (II) - base cermet materials was investigated as a function of the test temperature, machining of the specimens, stress concentration, and the nature of the strained state. Materials I were prepared by pressing under 1.25 ton/cm^2 pressure of a mixture containing Cr_3C_2 (85%) and Ni (15%) powder of $<40\mu$ granularity, and by sintering in Tamman furnaces in H_2 at 1,300°C. II was prepared by soaking with silicon briquet blanks which were manufactured by pressing graphite processed with bakelite. A short description is given of two fatigue testing machines designed specially for testing cermet materials at room and high temperatures (heating of the specimens is performed by direct passage of current). Fatigue tests of II with bending at 1,200°C and stresses as high as 5 and 7 kg/mm^2 show that with

Card 1/2

Some problems of fatigue strength ...

reduced stress, dissipation increases, and also the average number of cycles until the breakdown. As a result of fatigue tests made with II at 20 and 1,200°C, it was found that at low test bases, highest strength is shown by specimens tested at high temperatures. With a greater number of cycles changes take place; σ_w is then about 0.56 σ_b at 20°C, on the basis of 10^7 cycles and about 0.55 σ_b at 1,200°C on the basis of 10^6 cycles. Considerable residual deformation of I at 950°C prevented their breakdown. For non-treated I, σ_w was 30 kg/mm^2, for ground specimens σ_w was reduced down to 16 kg/mm^2; anodic-mechanical treatment had no effect upon σ_w. Specimens with stress concentrators showed σ_w as high as 16.6 kg/mm^2. It was found that σ_w of I was considerably reduced during their additional axial elongation and increased during compression.. The dissipation of energy was found to increase in materials with a greater number of loading cycles with stresses over σ_w; this indicates the irreversibility of processes which take place during cyclic loading of cermet materials. There are 9 references.

A. Epik

[Abstracter's note: Complete translation]

Card 2/2

37835

15.2430

S/123/62/000/008/007/016
A004/A101

AUTHORS: Troshchenko, V. T., Gryaznov, B. A.

TITLE: Some problems concerning the fatigue strength of cermet materials

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 8, 1962, 23, abstract 8A166 ("Ustalostn. prochnost' mater. i elem. Mater. konfer. v Varshave 12-14 maya 1960". Warszawa, 1961, 15-19)

TEXT: The authors investigated the effects of the test temperature (950 - 1,200°C), mechanical working, stress concentration and the kind of the stressed state on the fatigue strength of cermet materials based on chromium carbide (85% Cr_3C_2) and silicon carbide (49.22% SiC) on especially designed and manufactured machines (one with mechanical excitation of forces, the other with an electromagnetic one). The investigation results revealed that cermet alloys are subjected to fatigue, their test basis is 10^6 cycles, σ_w depends on the test temperature, stress raisers reduce σ_w. The specimen fracture does not show two clearly expressed zones (of porcelain-type form and the zone of brittle failure).

[Abstracter's note: Complete translation]

Card 1/1

X

ACCESSION NR: AT4013976 S/3070/63/000/000/0046/0050

AUTHOR: Troshchenko, V. T.

TITLE: Equipment for studies of energy dispersal in a material during fatigue tests

SOURCE: Novy*ye mashiny*i pribory*dlya ispy*taniya metallov. Sbornik statey. Moscow, Metallurgizdat, 1963, 46-50

TOPIC TAGS: metal fatigue test, energy dispersal, dynamic hysteresis loop method, fatigue failure, fatigue tester, dynamic hysteresis loop recorder, steel fatigue, metal fatigue

ABSTRACT: The author describes procedures and equipment (see Figs. 1 and 3 in the Enclosure) developed at the Institute for Metalloceramics and Special Alloys which permit a study of energy dispersal in a material during fatigue tests by means of the dynamic hysteresis loop method. The layout and procedures are claimed to be more advantageous than existing methods because: 1) most parts failing under recurrent variable loads operate here under flexion; 2) the highest fatigue point occurs in the presence of a plane cantilever bending stress; this permits tests at much higher loads, hence improved accuracy; 3) the counter can be attached at the

Card 1/6 2

ACCESSION NR: AT4013976

point of failure (see Fig. 2 in the Enclosure), hence variations in the effect being studied can be examined directly in the area of fatigue flaw formation. Specimens of steels No. 45 and 1Kh18N9T were tested and results are illustrated graphically (see Fig. 4 in the Enclosure). Orig. art. has: 1 graph, 4 illustrations.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR (Institute for Metalloceramics and Special Alloys)

SUBMITTED: 00 DATE ACQ: 20Feb64 ENCL: 04

SUB CODE: ML, SD NO REF SOV: 006 OTHER: 004

Card 2/6

ACCESSION NR: AT4040398 S/0000/63/000/000/0149/0158

AUTHOR: Troshchenko, V. T.

TITLE: The interrelationship between fatigue strength and energy dissipation in a material

SOURCE: Nauchno-tekhnicheskoye soveshchaniye po voprosam kolebaniy s uchetom rasseyaniya energii. 4th, 1962. Rasseyaniye energii pri kolebaniyakh uprugikh sistem (Energy dissipation during vibrations of elastic systems); trudy* soveschaniya. Kiev, Izd-vo AN UkrSSR, 1963, 149-158

TOPIC TAGS: steel, steel No. 45, steel 1Kh18N9T, steel 1Kh13, steel fatigue strength, steel energy dissipation, steel stress concentration sensitivity, plastically deformed bulk, fatigue strength, stress concentration.

ABSTRACT: A specially developed procedure, based on measuring the area of dynamic hysteresis loops, was employed to study energy dissipation in samples of variously heat-treated steels (No. 45, 1Kh18N9T, 1Kh13) in relation to levels of stress. The report also provides a comparison of energy dissipation characteristics with sensitivity to stress concentration. Test samples, procedure and equipment are described and schematically

Card 1/2

ACCESSION NR: AT4040398

illustrated. For the given stress range, i.e. 20 — 47 kg/mm^2, dissipation increased steadily in No. 45 and 1Kh16N9T steel from the fatigue limit on up. Sensitivity to stress concentration q was quite low (i.e. 0.31) for 1Kh18N9T, a steel characterized by high levels of energy dissipation, while steel No. 45 was quite sensitive (q = 1.0). It is concluded that the bulk of plastically deformed material varies significantly for different steels at stress levels equalling the fatigue limit. Hence that value cannot be used as a criterion of fatigue failure. An increase in the number of micro-volumes subject to plastic deformation results in an increased dissipation of energy and lowered sensitivity to stress concentration. Orig. art. has: 2 tables, 6 graphs and 5 formulas.

ASSOCIATION: none

SUBMITTED: 23Nov63 DATE ACQ: 07Jul64 ENCL: 00

SUB CODE: MM NO REF SOV: 007 OTHER: 004

Card 2/2

TROSHCHENKO, V.T.

Effect of the speed of applying loads on the strength characteristics of a number of ceramic metals. Porosh. met. 3 no.1:26-32 Ja-F '63. (MIRA 16:3)

1. Institut metallokeramiki i spetsial'nykh splavov AN YkrSSR.
(Ceramic metals--Testing)

TROSHCHENKO, V.T.

Strength of porous ceramic metal materials. Porosh.met. 3 no.3: 3-11 My-Je '63. (MIRA 17:3)

1. Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR.

S/126/63/015/003/012/025
E193/E383

AUTHOR: Troshchenko, V.T.

TITLE: On the problem of nonuniformity of deformation in polycrystalline aggregates

PERIODICAL: Fizika metallov i metallovedeniye, v. 15, no. 3, 1963, 410 - 418

TEXT: The object of the present investigation was to study the laws governing fatigue and scattering of energy in a material in relation to nonuniformity of deformation. The experimental materials included: heat-treated steel 45 (UTS 67.5 kg/mm^2, δ = 17.8%); heat-treated steel 1Kh18N9T (1Kh18N9T) (UTS 52.5 kg/mm^2, δ = 54%); steel 1K (1Kh) hardened and tempered either at 430 °C (UTS 134.5 kg/mm^2, δ = 14.5%) or at 780 °C (UTS = 71 kg/mm^2, δ = 17.6%); sintered, low-carbon (0.05%) steel powder compacts with porosity ranging from 15 to 37%, UTS from 17.7 to 6 kg/mm^2 and δ from 10.9 to 4.9%. Accurate stress-strain diagrams were constructed for all the materials studied, the fatigue limit was determined on notched and unnotched specimens tested in pure bending, and scattering of energy was evaluated from the dynamic

Card 1/2

S/126/63/015/003/012/025
E193/E383

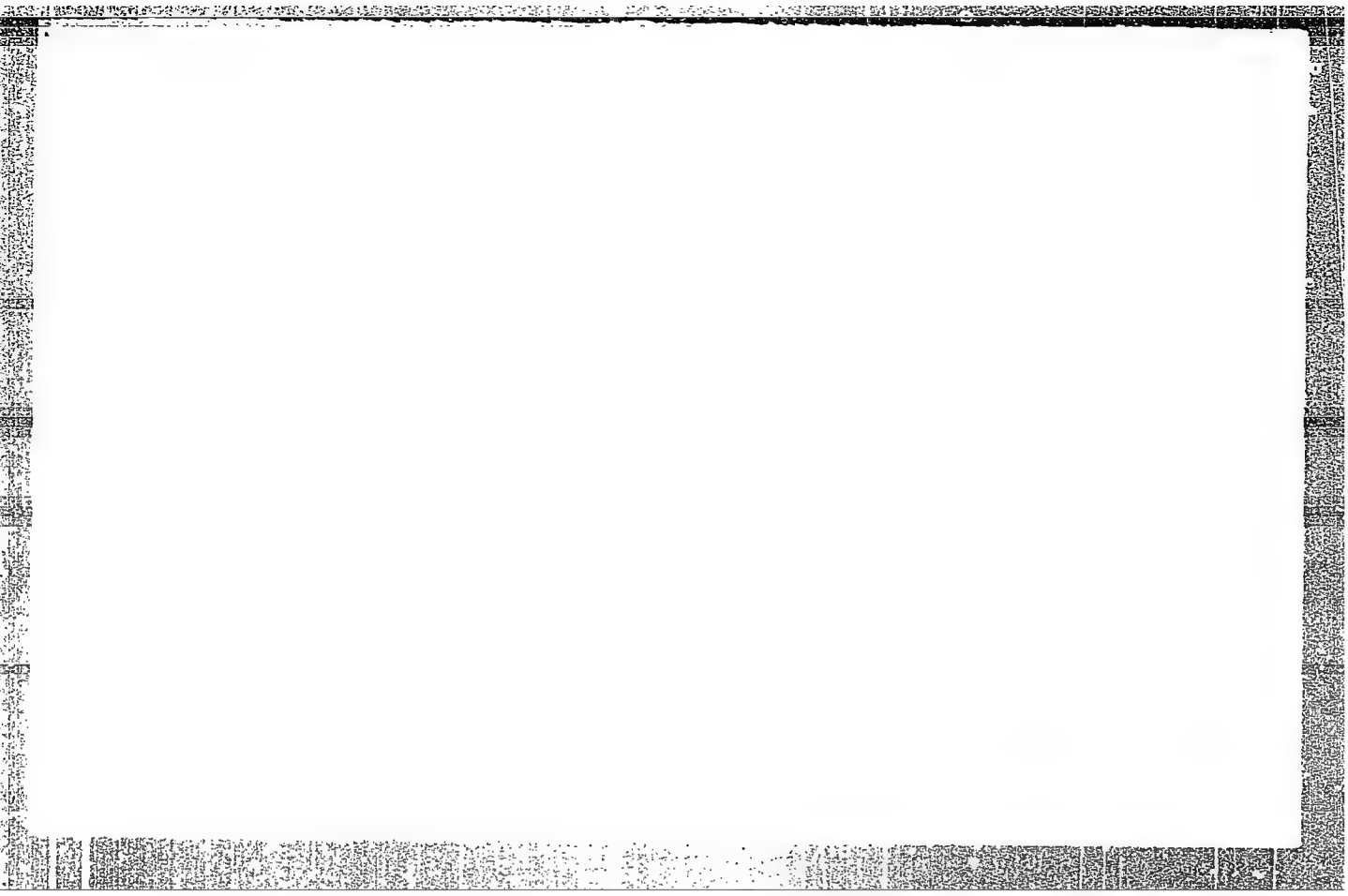
On the problem of ....

hysteresis loops of specimens vibrating in bending. Conclusions - 1) Since the proportion of plastically deformed material in specimens under a stress equal to the yield point of the material differs considerably from steel to steel, this characteristic cannot be used as a criterion of the fatigue fracture. 2) There is a direct relationship between nonuniform stress distribution in the microvolumes of a material and its notch sensitivity: as the degree of nonuniformity of stress distribution increases, the notch sensitivity decreases. This observations is in agreement with the statistical theory of fatigue metals due to Afanas'yev (Statisticheskaya teoriya ustalostnoy prochnosti metallov - Statistical theory of the fatigue strength of metals - Izd.AN UkrSSR, 1953) 3) The scattering of energy in steels 45 and 1Kh18N9T increases with increasing stress, the effect being more pronounced in more heterogeneous materials, particularly steel 1Kh18N9T. There are 6 figures and 5 tables.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metallurgy and Special Alloys of the AS UkrSSR)

SUBMITTED: March 20, 1962 (initially), June 21, 1962 (after revision)

Card 2/2



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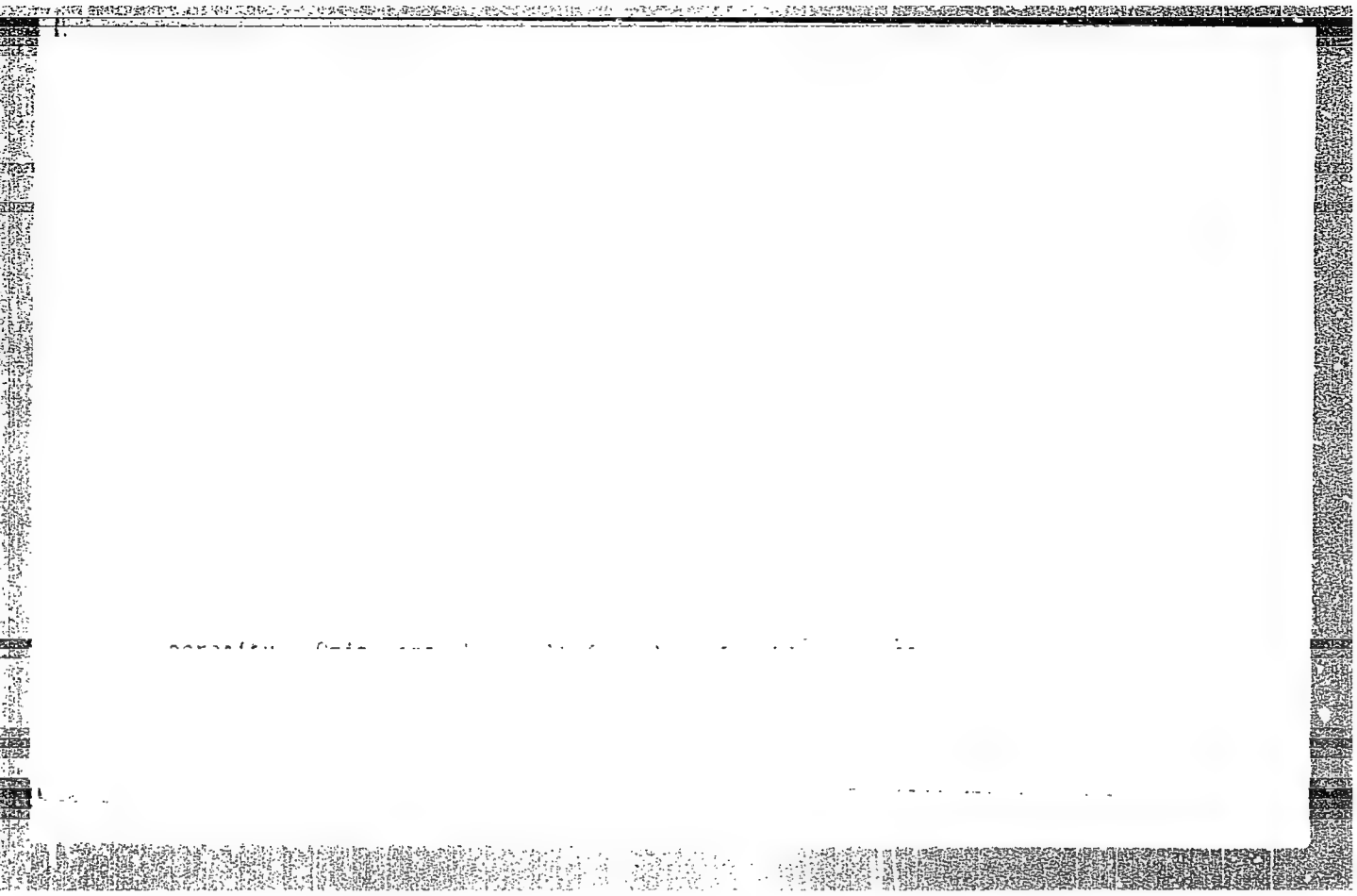

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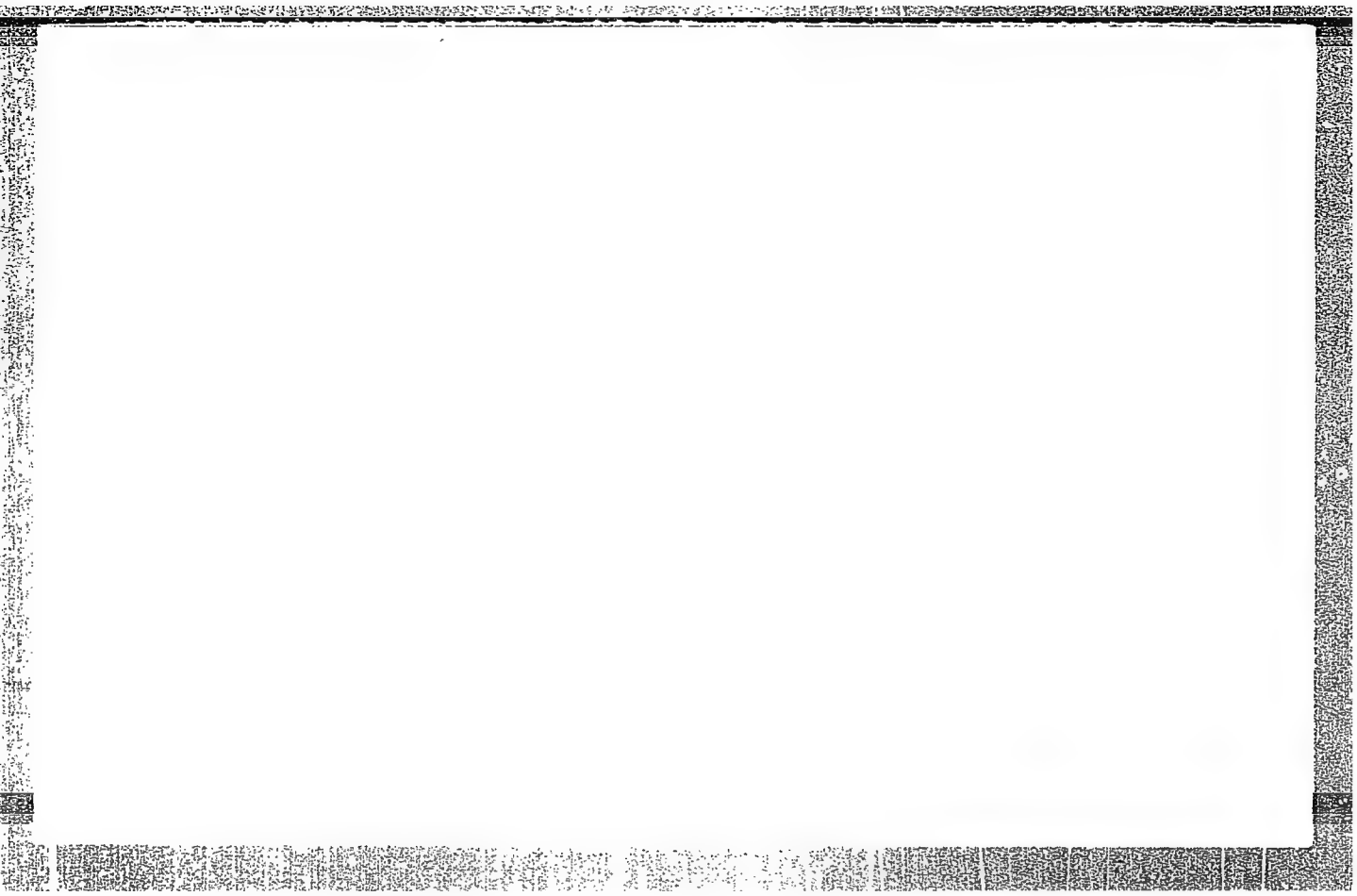

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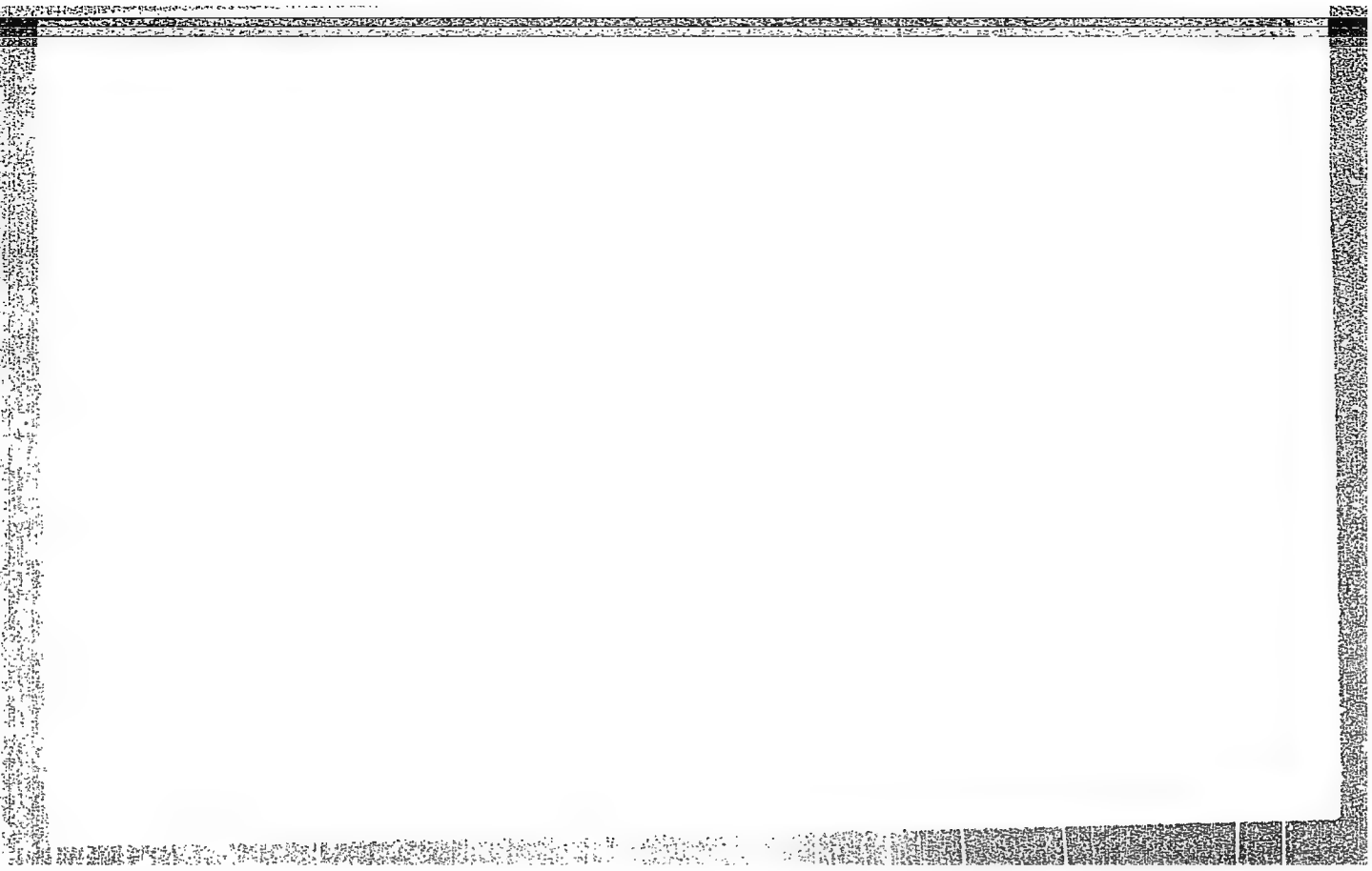

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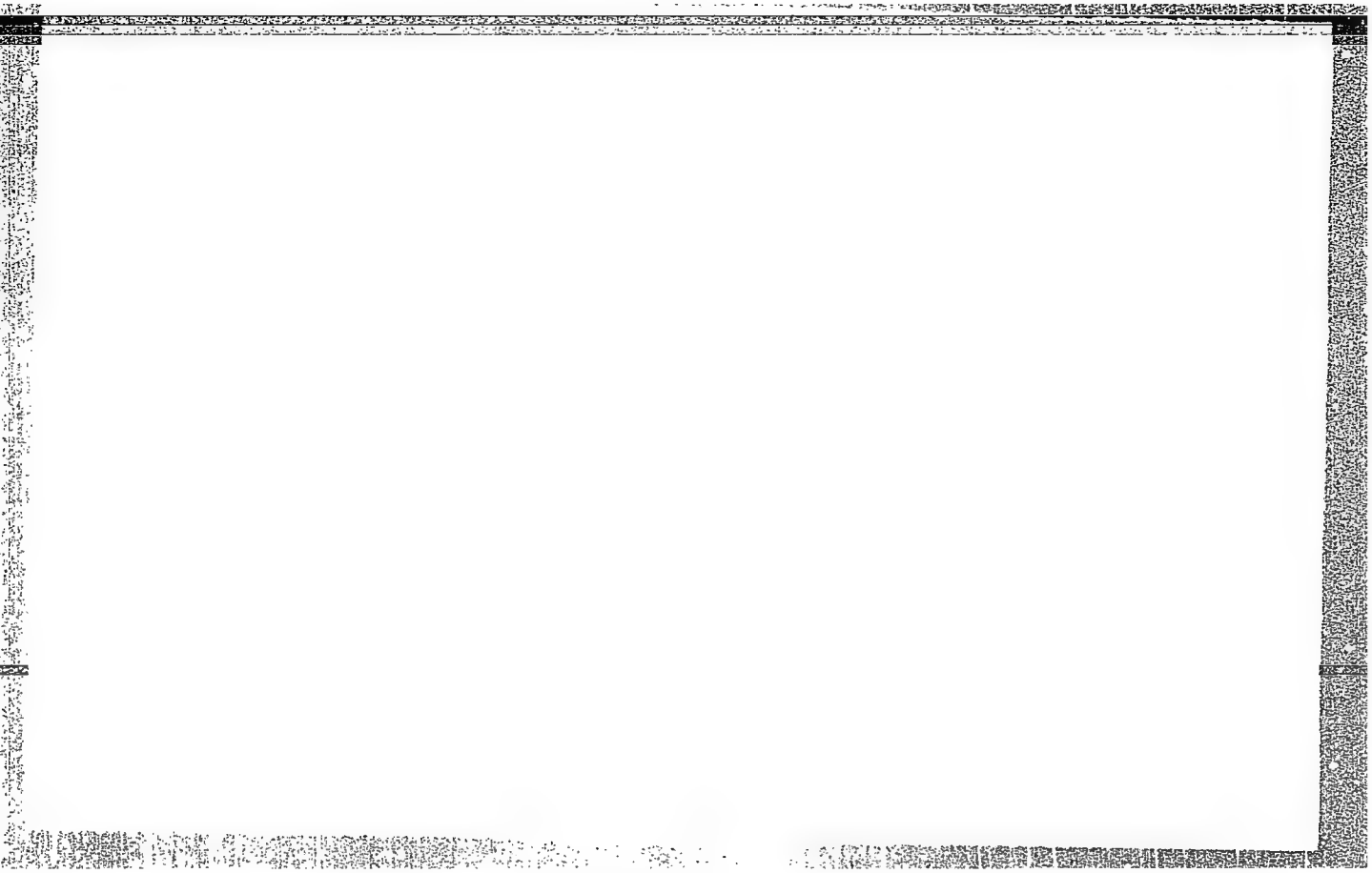

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ZHORNAK, V.A.

Investigation of the deformability of porous ceramic metal materials during tensile testing. Poroshk. met. 5 no.1:52-59 Ja '65. (MIRA 18:10)

1. Institut problem materialovedeniya AN UkrSSR.

TROSHCHENKO, V.T.; KRASOVSKIY, A.Ya.

Strength of porous iron during repeated alternating loading.
Poroshk. met. 5 no.5:87-92 My '65. (MIRA 18:5)

1. Institut problem materialovedeniya AN UkrSSR.

PISARENKO, G.S.; TROSHCHENKO, V.T.; KRASOVSKIY, A.Ya.

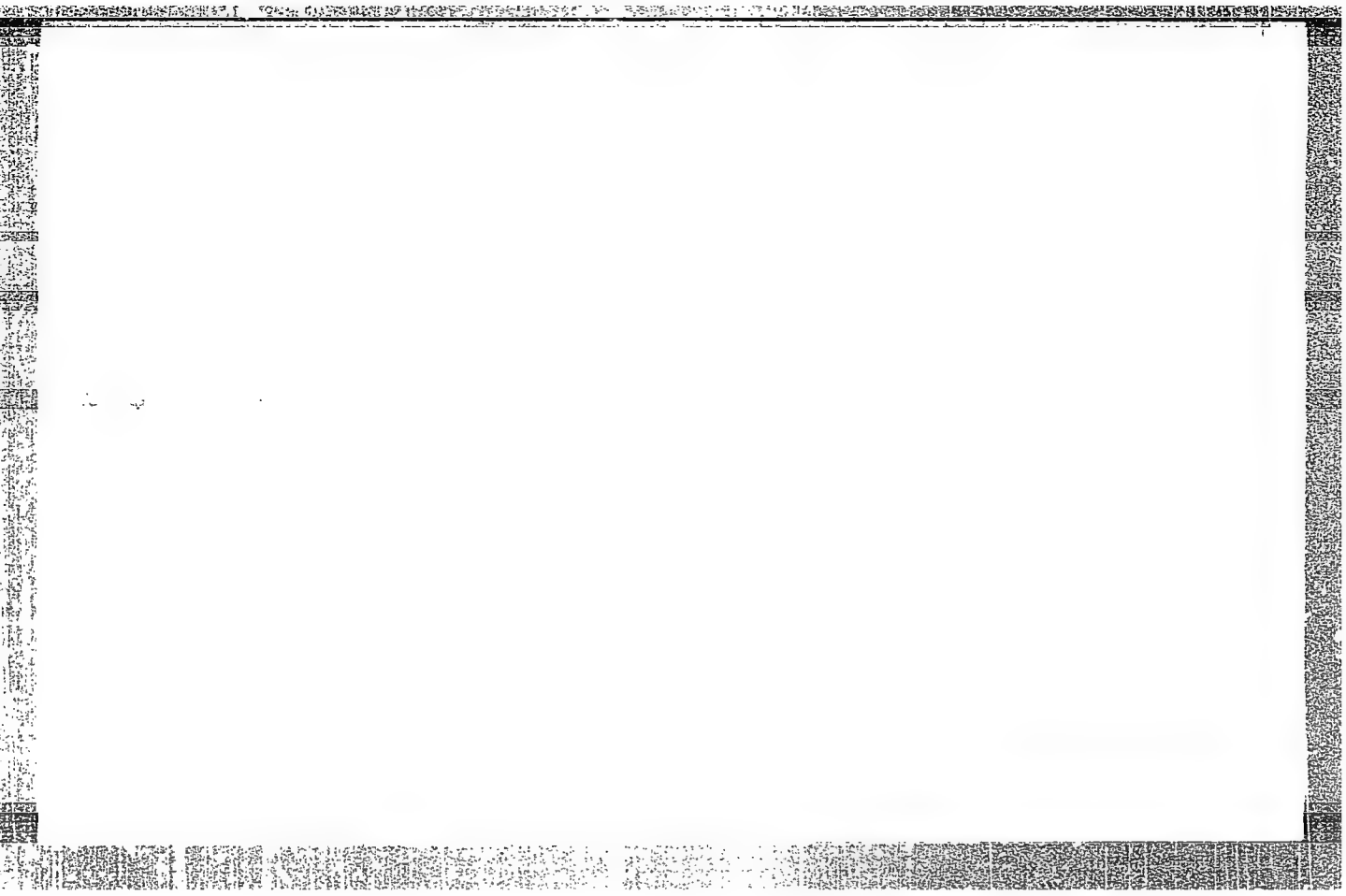
Investigating the mechanical properties of porous iron under the effect of tension and torsion. Report no.1. Poroshk.met. 5 no.6:42-48 Je '65. (MIRA 18:8)

1. Institut problem materialovedeniya AN UkrSSR.

PISARENKO, G.S.; TROSHCHENKO, V.T.; KRASOVSKIY, A.Ya.

Investigating the mechanical properties of porous iron under the effect of tension and torsion. Poroshk. met. 5 no.7:88-96 Jl '65. (MIRA 18:8)

1. Institut problem materialovedeniya AN UkrSSR.



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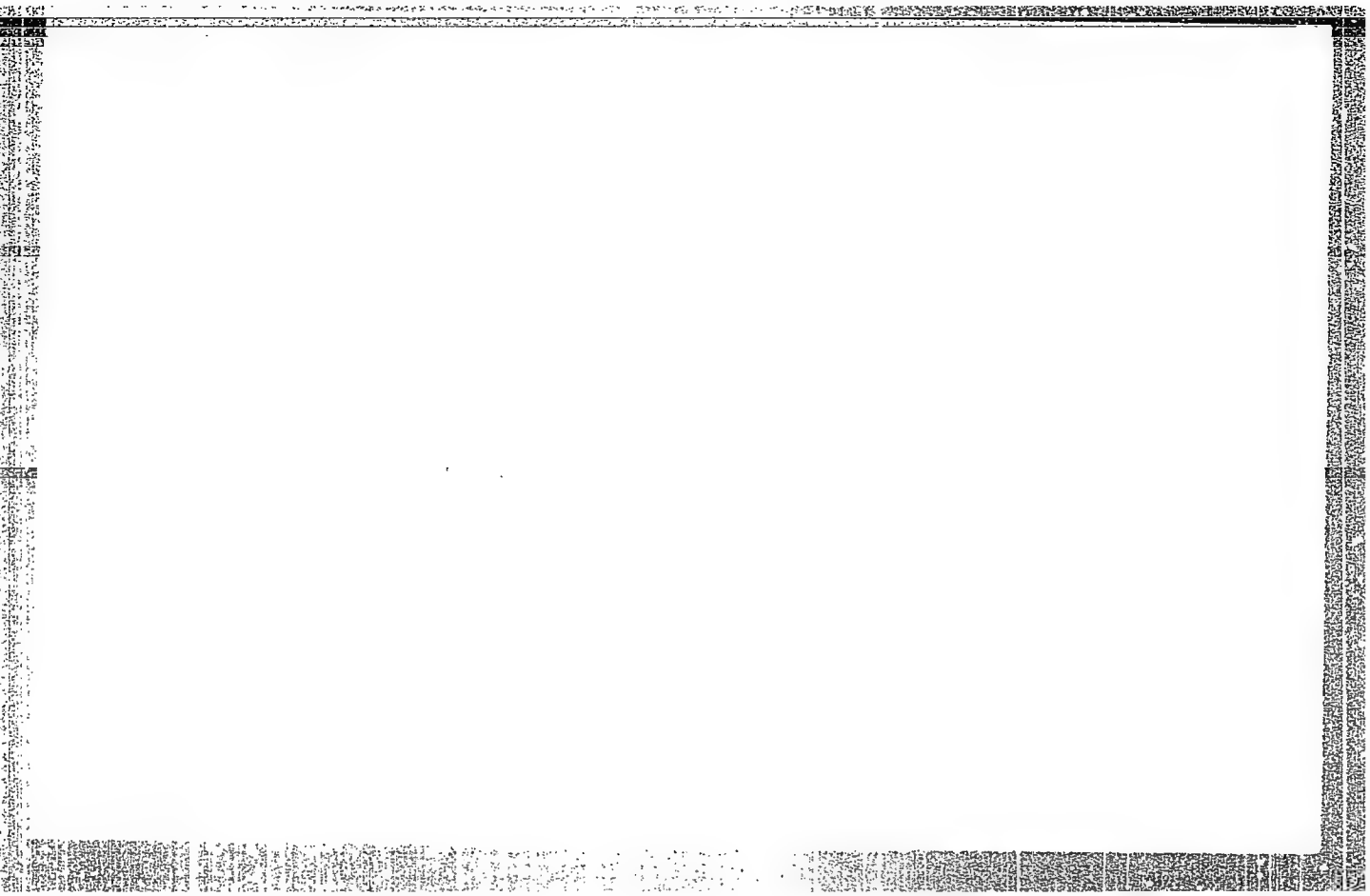
deviation as a function of material properties and specimen size. It was found



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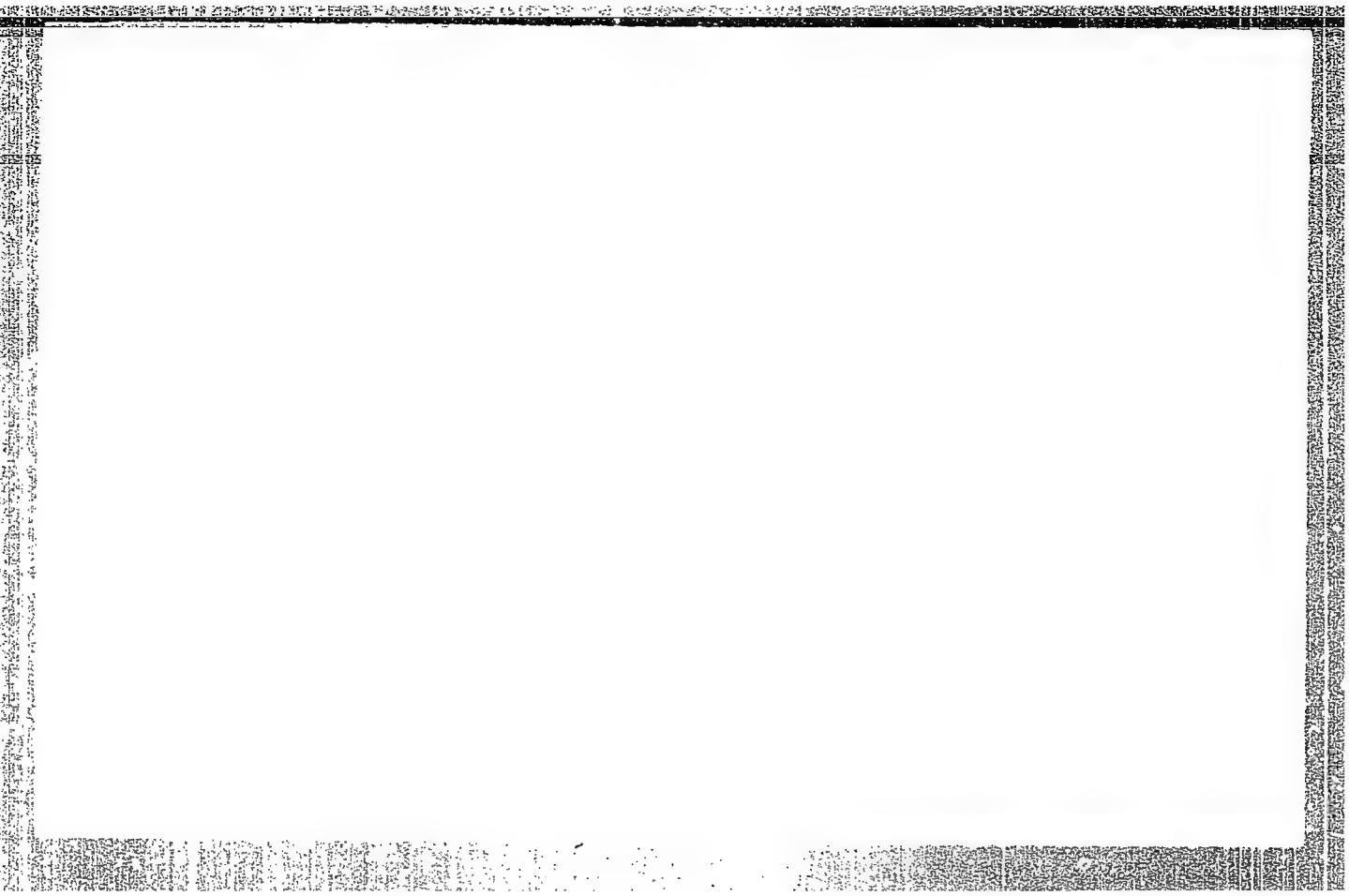


APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001756720018-4"

PISARENKO, G.S. [Pysarenko, H.S.], akademik; TROSHCHENKO, V.T.; BUGAY, V.I. [Buhai, V.I.]

Correlation between the values of the fatigue limit and the strength characteristics of metals. Dop. AN URSR no.2:187-190 '65. (MIRA 18:2)

1. Institut problem materialovedeniya AN UkrSSR.
2. AN UkrSSR (for Pisarenko).

TROSHCHENKO, Valeriy Trofimovich, kand. tekhn. nauk; RUDENKO, Vasiliy Nikitich, kand. tekhn. nauk; KOVALEV, K.V., kand. tekhn. nauk, retsenzent

[Strength of ceramic metal materials and methods of determining it] Prochnost' metallokeramicheskikh materialov i metody ee opredeleniia. Kiev, Tekhnika, 1965. 187 p. (MIRA 18:12)

L 21818-66 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EWI(c) IJP(c)

ACC NR: AT6008660 (N) SOURCE CODE: UR/0000/65/000/000/0160/0169

EM/JD/HW/GS

AUTHORS: Bugay, V. I. (Kiev); Pisarenko, G. S. (Academician AN UkrSSR) (Kiev); Troshchenko, V. T. (Kiev)

62.
56
8+1

ORG: none

TITLE: A study of inelastic deformations in metals under cyclic deformation

SOURCE: Vsesoyuznoye soveshchaniye po voprosam staticheskoy i dinamicheskoy prochnosti materialov i konstruktsionnykh elementov pri vysokikh i nizkikh temperaturakh, 3d. Termoprochnost' materialov i konstruktsionnykh elementov (Thermal strength of materials and construction elements); materialy soveshchaniya. Kiev, Naukova dumka, 1965, 160-169

circuit design

TOPIC TAGS: /fatigue strength, metal stress, strain, plastic deformation, hysteresis loop, copper, steel / 45 steel, 25 steel, 20Kh steel, EI726 steel, 1Kh18N10T steel, TsDM PU-10 testing machine

ABSTRACT: The course of plastic deformations in metals and alloys as a function of the stresses and number of loading cycles is studied. The work was done to obtain criteria for the fatigue strength of materials. A system developed earlier by V. T. Troshchenko (Novyye mashiny i probory dlya ispytaniya metallov, M., Metallurgizdat, 1963) underlies the method. The 10-ton East German TsDM PU-10 machine was used for mechanical loading of up to $P_a = \pm 49$ kN. The frequency can be varied smoothly from

Card 1/3

500 to 2000 cycles per minute. A dynamic hysteresis loop in coordinates proportional to σ and ε is obtained on the screen of an oscillograph during testing (see Fig. 1).

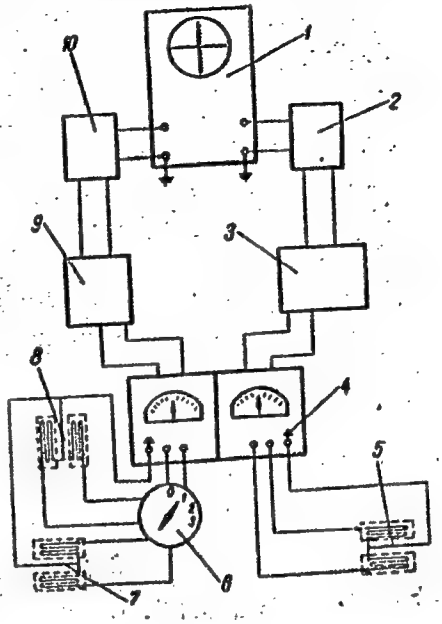


Fig. 1. Circuit for recording dynamic hysteresis loops with cyclic variable loading: 1 - oscillograph; 2, 10 - filters; 3 - amplifier; 4 - tensostation; 6 - PMT switch; 5, 7, 8, 9 - resistance pickups.

Copper and 45, 25, 20Kh, EI726, and 1Kh18N10T steels were tested (see Fig. 2).

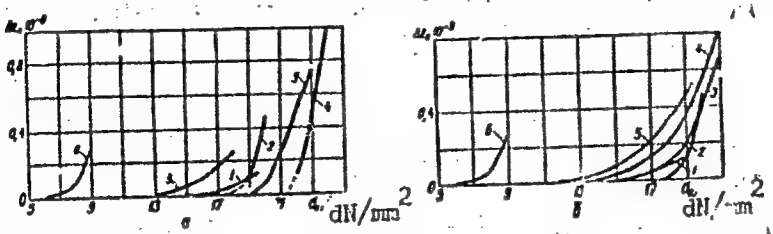


Fig. 2. Change in width of hysteresis loop versus stress: a - first loading; b - second loading; 1 - EI726; 2 - 25 steel; 3 - 20Kh steel; 4 - 45 steel; 5 - 1Kh18N10T steel; 6 - copper.

With cyclic stress and strain, opening of the hysteresis loop for the steels tested is observed with much smaller stresses than with static loading. For the steels, with stresses exceeding the fatigue limit, the width of the hysteresis loop increases regularly with the number of loading cycles until destruction of the specimen. Orig. art. has: 2 diagrams, 3 graphs, 2 photographs, 2 tables, and 4 formulas.

SUB CODE: 20, 11/SUBM DATE: 19Aug65/ ORIG REF: 002

L 38114-66 EWT(m)/EWP(w)/T/EWP(t)/ETI/EWP(k) IJP(c) EM/JD/HW

ACC NR: AP6010089 (A) SOURCE CODE: UR/0129/66/000/003/0018/0022

AUTHOR: Pobirovskiy, V. I.; Troshchenko, V. T.

ORG: Institute for Materials AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)

TITLE: Sensitivity to stress concentration of type ShKh15 steel after different heat treatments

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 3, 1966, 18-22

TOPIC TAGS: stress concentration, metal heat treatment, low alloy steel

ABSTRACT: A table gives the chemical composition of type ShKh15 steel, which is as follows: 0.01% carbon; 0.3% manganese; 0.1% silicon; 1.4 chromium; 0.07 nickel; 0.006% sulfur; 0.010% phosphorous. Heat treatment was carried out under three sets of conditions: 1) quenching from 840°C in oil, annealing at 170°C, holding time 3 hours; 2) quenching from 840°C in oil, annealing at 510°C, holding time 2 hours; 3) quenching from 840°C in oil, annealing at 650°C, holding time 2 hours. The structure of the steels worked under the first set of conditions consists of martensite, residual austenite, and carbides. Steels worked under

Card 1/2 UDC: 621.79.669.14.018.25

L 38114-66

ACC NR: AP6010089 2

conditions 2 and 3 do not contain martensite. The mechanical properties of the steels are given in a table. In general, it was found that the sensitivity of steel ShKh15 to stress concentration depends to a great degree on the method used to prepare the concentrates. It was established that the dependence of the plastic deformation at stresses equal to the fatigue limit on the hardness in the region of high hardness corresponds to the results obtained for samples prepared by the second method mentioned above. For all the degrees of hardness investigated, there was also observed a correlation between the sensitivity to stress concentration and the quantitiy σ_v/σ_p. Orig. art. has: 3 figures and 3 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 006/ OTH REF: 001

Card 2/2

ACC NR: AM6004546 (A) Monograph UR/

Troshchenko, Valeriy Trofimovich (Candidate of Technical Sciences); Rudenko, Vasiliy Nikitich (Candidate of Technical Sciences)

Durability of metal-ceramic materials and methods of testing it (Prochnost' metalloke ramicheskikh materialov i metody yeye opredeleniya) Kiev, Izd-vo "Tekhnika", 65. 0187 p. illus., biblio. 2,000 copies printed.

TOPIC TAGS: ceramic product, ceramic product property, ceramic wear material, high temperature ceramic material, ceramic technology,

PURPOSE AND COVERAGE: This book summarizes the general knowledge of purpose of technology of processing, use and physical and technological properties of metal-ceramic materials. The results are given of deformation and disintegration of similar materials; and their explanation is given, based on the statistical theory of durability. The methods are described of technological testing of metal-ceramic materials at room and high temperatures. Special attention is given to high-melting metal-ceramic materials containing small amount of plastic at a very high temperatures (up to 3000°K). The book is intended for engineers and scinetists studying the properties of metal-ceramic materials, as well as their introduction into industry, and for students at higher technical institutes.

TABLE OF CONTENTS (abridged):

Card 1/2 UDC:621.775.74

ACC NR: AM6004546

Ch. I. Basic principles of deformation and breaking up of metal-ceramic materials--64

Ch. II. Methods of determining the durability and plasticity of metal-ceramic materials--119

Bibliography--181

SUB CODE: 11 SUBM DATE: 21Aug65/ ORIG REF: 095/ OTH REF: 021

Card 2/2

ACC NR: AP7001426 SOURCE CODE: UR/0413/66/000/021/0144/0144

INVENTOR: Troshchenko, V. T.; Uskov, Ye. I.

ORG: none

TITLE: Unit for investigating the effect of frequent temperature changes on the strength and creep of refractory metals and alloys in an inert medium. Class 42, No. 188103 [announced by the Institute of Problems of Material Study AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 21, 1966, 144

TOPIC TAGS: refractory metal, refractory alloy, ~~metal~~ fatigue strength, ~~metal~~ creep, ~~temperature change metal resistance~~, ~~metal resistance testing unit~~ vacuum chamber, metallurgic testing machine

ABSTRACT: This Author Certificate introduces a unit for investigating the effect of repeated temperature changes on the strength and creep of refractory metals and alloys in an inert medium. The unit includes a vacuum chamber which contains a heater and a rotary shaft carrying fixtures with specimens and loading devices. To enable simultaneous testing of several specimens at a programmed temperature change, the unit is equipped with a cooling device located in the vacuum chamber in a certain distance from the heater and a programming device which controls the temperature change. A constant stress in the specimen is created by springs. Orig. art. has: 1 figure.

SUB CODE: 13, 11, 14/ SUBM DATE: 21Jun65/

Card 1/1 UDC: 620.171.32

TROSHCHENKO, V.T.; BUGAY, V.I.

Durability of steels as dependent on the plastic per cycle deformation under conditions of uniform and nonuniform stressed states. Zav. lab. 31 no. 12:1501-1503 '65 (MIRA 19:1)

1. Institut problem materialovedeniya AN UkrSSR.

NOVIKOV, N. V., kand. tekhn. nauk; TROSHCHENKO, V. T.; POBIROVSKIY, V. I.

Study of strength and damping properties of some materials used by the turbine industry. Energomashinostroenie 8 no.12: 30-33 D '62. (MIRA 16:1)

(Turbines)

S/114/62/000/012/006/007
E194/E535

AUTHORS: Novikov, N.V., Candidate of Technical Sciences, Troshchenko, V.T. and Pobirovskiy, V.I., Engineer

TITLE: Investigation of the fatigue strength and the damping properties of some materials used in turbine engineering

PERIODICAL: Energomashinostroyeniye, no. 12, 1962, 30 - 33

TEXT: Investigations were carried out on the steels 1Kh13 (1Kh13) (hardened from 1 000 °C, oil-quenched, followed by tempering at 430, 650 and 750 °C, respectively), OKhN3MFA (OKhN3MFA) (hardened in oil from 870 °C, then tempered at 600 °C and air-cooled), OKH3MΦA (OKhN3MFA) (hardened from 850 °C in oil, followed by tempering at 680 °C and cooling in air) and the titanium alloy 48-OT3 (48-OTZ) (annealed at 850 °C for two hours followed by cooling air). In the experiments, the effects of temperature (20 - 500 °C), cycle asymmetry, stress concentration, surface quality as well as the irreversible energy dissipation in the material during vibration were taken into account. The fatigue limit of the steel 1Kh13 decreased appreciably from 500 °C upwards; for the steel OKhN3MFA the fatigue limit began to

Card 1/3

Investigation of ....

decrease from 400 °C upwards. The maximum stress of the cycle in excess of the yield point of the material did not lead to an appreciable drop in the fatigue limit of the steel 1Kh13 (specimens tempered at 750 °C). The surface quality had a considerable influence on the fatigue limit of the steel 1Kh13, particularly at room temperature and especially for specimens subjected to low-temperature tempering; in this case, the fatigue limit increased by 45% as a result of increasing the surface quality from class 4 to class 11. The effect of the surface quality decreased with temperature. For the steel 1Kh13, tempered at 750 °C, the energy dissipation of the material was high and decreased with decreasing tempering temperature; the behaviour was somewhat unusual in as much that in a certain range it increased with decreasing stress; this was attributed to magnetostriction effects and magnetomechanical hysteresis associated therewith. An intensive increase in the logarithmic damping decrement began from 500 - 550 °C with increasing temperature, regardless of heat treatment. A lowering of the energy dissipation in the temperature range 400 - 500 °C was attributed to dispersion-hardening. For the

Card 2/3

Investigation of ....

steels OKhN1MFA and OKhN3MFA the logarithmic damping decrement increased almost linearly with increasing stress and temperature; a sharp increase in the logarithmic damping decrement was observed above 400 - 450 °C. It was established that there was a definite relationship between the fatigue failure and the change in the logarithmic damping decrement of the steels investigated. The fatigue limit dropped considerably in the same range in which a sharp increase in the logarithmic damping decrement was observed. The sensitivity of the steels to cycle asymmetry increased with increasing value of the latter and their sensitivity to stress-concentration and to surface quality decreased. There are 5 figures and 4 tables.

Card 3/3

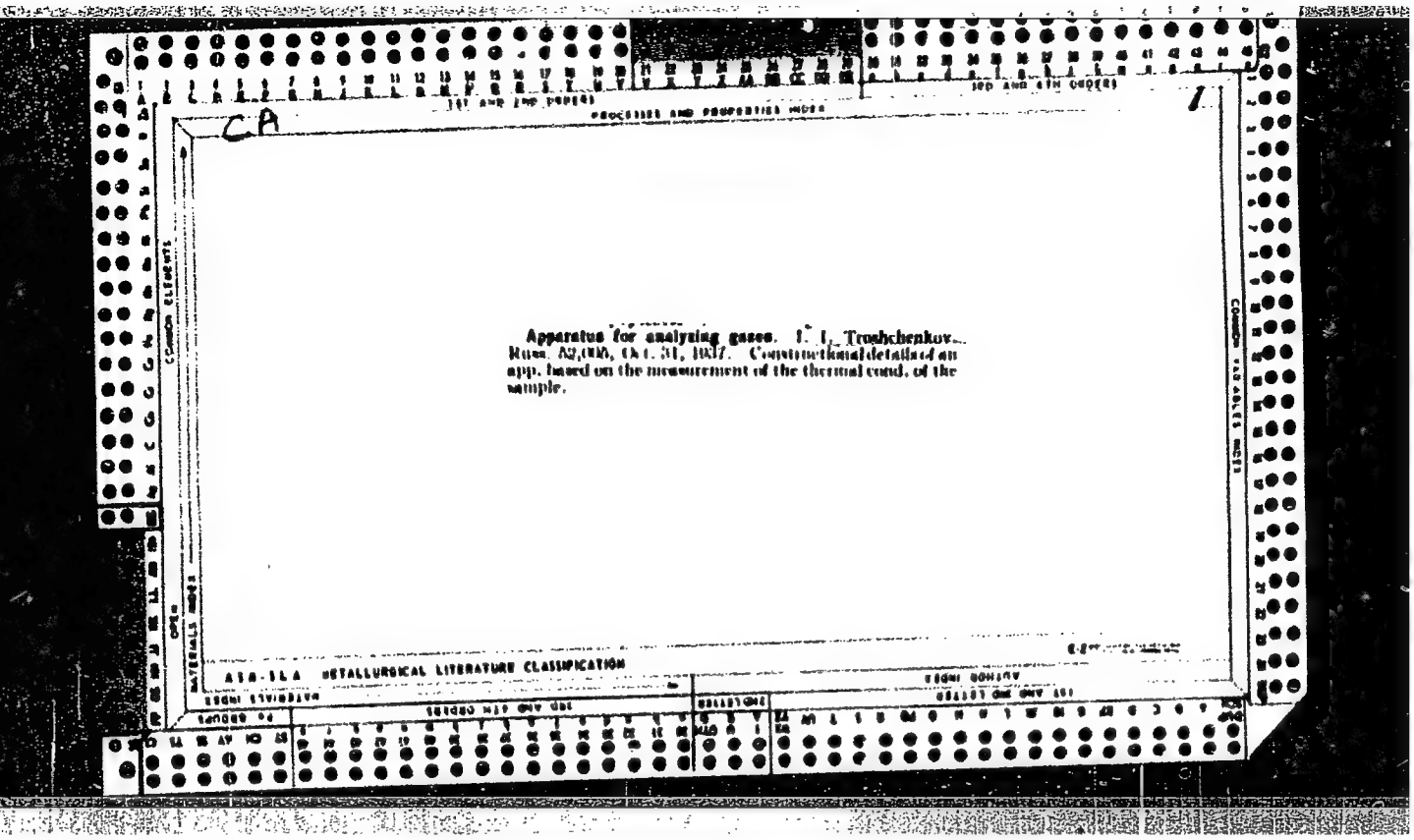
TROSHCHENKO, V.T.

Effect of the nonuniformity of distribution of porosities in the cross section of a specimen on its strength characteristics. Porosh. met. 4 no.6:71-78 N-D '64. (MIRA 18:3)

1. Institut problem materialovedeniya AN UkrSSR.

SMIRNOV, Alekaey Aleksandrovich; TROSHCHENKOV, I.I., redaktor; DOLMATOV, P.S., vedushchiy redaktor; GENNAD'YEVA, I.M., tekhn. redaktor.

[Repair of heat regulators; a practical reference manual] Remont reguliatorov teplovykh protsessov; spravochnoe prakticheskoe rukovodstvo. Leningrad, Gos. nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1957. 654 p. (MIRA 10:12)
(Thermostat--Maintenance and repair) (Automatic control) (Heat)



PIVEN', Viktor Danilovich, doktor tekhn. nauk, prof.; BOGDANOV, Valentin Kirillovich; GANZHERLI, Emmanuil Il'ich; ZAMANSKIY, Abram Markovich; TROSHCHENKOV, I.I., retsenzent; CHERKASOV, K.I., red.

[Automation of power generating systems] Avtomatizatsiia energeticheskikh blokov. Pod obshchei red. V.D.Piven'. Moskva, Energiia, 1965. 351 p. (MIRA 19:1)

TROSHCHENKOV, N.A., inzh.; TILIK, V.T., inzh.; MIRENSKIY, Yu.M., inzh.

"Metals for sheet-metal work" by V.P.Severdenko, S.A.Pasechnyi. Stal' 23 no.1:89 Ja '63. (MIRA 16:2)

1. Zavod "Zaporozhstal'".
(Sheet-metal work) (Steel, Automobile)

KSENZUK, F.A., Inzh.; AVRAMENKO, I.N., Inzh.; MIRENSKIY, Yu.M.; TROSHCHENKOV, N.A.

Relation between the degree of deformation and the speed and tension during the straightening of sheet steel for automobiles. Stal' 25 no.7:632-634 Jl '65. (MIRA 18:7)

1. Zavod "Zaporozhstal'".

YASHNIKOV, D.I., inzh.; TILIK, V.T., inzh.; TROSHCHENKOV, N.A., inzh.; Prinimali uchastiye: SAMOYLOV, I.D., inzh.; VERBITSKIY, A.I., inzh.; KRASNIKOV, A.S., inzh.; BURBELO, V.G., inzh.; KSENZUK, F.A., inzh.; MIRKINA, R.Ye., inzh.; GOL'DSHTEYN, F., inzh.; BOCHKO, S.A., inzh.

Reducing the consumption of tin in improving the microgeometry of sheet iron surfaces. Stal' 21 no.9:862-864 S '61. (MIRA 14:9)

1. Zavod "Zaporozhstal'".
(Tinning) (Surfaces (Technology))

YUDIN, M.I.; TROSHCHENKOV, N.A.

Polished stainless steel plates. Metallurg 6 no. 1:21-23 Ja '61.

1. Nachal'nik tsekha kholodnoy prokatki zavoda "Zaporozhstal'" (for Yudin). 2. Rukovoditel' prokatnoy gruppy tsentral'noy zavodskoy laboratorii zavoda "Zaporozhstal'" (for Troshchenkov).
(Plates, Iron and steel) (Grinding and polishing)

FILONOV, V.A., inzh.; YUDIN, M.I., inzh.; TROSHCHENKOV, N.A.; MOVSHOVICH, V.S.

Improving the procedure for the manufacture of cold-rolled sheet alloyed steel. Stal' 20 no. 12:1116-1118 D '60. (MIRA 13:12)

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(Rolling (Metalwork))